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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,393	01/09/2007	David Patrick Egan	293731US0PCT	2547
22850 7590 12/31/2008 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER MARCHESCHI MICHAEL A				
ART UNIT 1793		PAPER NUMBER		
NOTIFICATION DATE 12/31/2008		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/586,393

Applicant(s)

EGAN ET AL.

Examiner

Michael A. Marcheschi

Art Unit

1793

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 6-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 6-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/22/08 has been entered.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 is indefinite because it depends on itself.

Claims 1-3 and 6-8 are rejected under 35 U.S.C. 103(a) as obvious EP 532261 in view of ZA 200107995 alone or further in view of Chen (865) and EP 577375.

EP 532261 teaches boron nitride abrasives coated with a first coating layer of a boride, carbide or nitride of a metal (i.e. titanium, etc.) and an outer layer of another boride, nitride or carbide.

EP 532261 fails to teach that the outer coating is a carbonitride (i.e. titanium), however, it is well established in the art of coating abrasives (i.e. cBN or diamond) that boride, nitride or carbide coatings are interchangeable with carbonitride coatings (i.e. functional equivalence of these coating for coating superabrasive grains to achieve desired results), as evidenced by ZA 200107995 in the abstract, thus the substitution of a carbonitride coating for the carbide, nitrides of boride outer coating of the EP 532261 would have been well within the scope of the skilled artisan motivated by the fact that the secondary reference clearly teaches the interchangeability of a carbonitride coating for a boride, nitride or carbide coating when coating superabrasive particles. In other words, the substitution of one known functionally equivalent coating for another that is to be used for the same purpose (coating superabrasives) is well within the scope of the skilled artisan. In addition, the EP 532261 states that that the layer can be a nitride or carbide and thus it is reasonable that one skilled in the art would have clearly appreciated that said coating can be a mixture of the two specifically defined materials, such as a carbonitride

Although EP 532261 does not coat diamonds but rather cBN, it is well established in the coating of superabrasive grains that either diamond or cBN grains can be coated with the same coatings, as is shown by ZA 200107995 in the abstract, Chen in claim 1 and EP 577375 in the abstract and in column 2, lines 30-38, thus the substitution of diamond for cBN as the abrasive to be coated with the layers of the EP 532261 in view of ZA 200107995 is clearly well within the scope of the skilled artisan (i.e. ZA 200107995, Chen and EP 577375 clearly teaches that diamond or cBN can be coated with the same coatings and one skilled in the art would have clearly appreciated that this concept of coating diamonds, as well as cBN, can be applicable to the disclosure of EP 532261) absent clear and critical evidence to the contrary. The examiner

has established a clear prima facie case of obviousness and burden is shifted to applicants to establish clear proof as to why one skilled in the art would not or could not, under any circumstances, be motivated to interchange one base particle for another when both are known to be coated with similar substances.

Claim 3 is a product by process claim which provide no patentable distinction to the product. Applicants use process limitations to define the product and "product-by-process" claims do not patentably distinguish the product even though made by a different process. *In re Thorpe* 227 USPQ 964.

Claims 1-3 and 6-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Mensa-Wilmot (021).

Mensa-Wilmot (021) teaches in the abstract, coating a diamond material wherein the coating is based on the materials defined in column 2, lines 45-54. Column 2, lines 62-65 defines an example of a coating which includes (1) an inner layer of titanium nitride and (2) and outer layer of titanium carbonitride.

The reference teaches a coated diamond material that includes the claimed structure and coatings, thus the reference anticipates the claimed invention. It is to be noted that the specification and original claim 5 defines that the superabrasive core can be a PCD substrate (same substrate as that defined by the reference).

Claim 3 is a product by process claim which provide no patentable distinction to the product. Applicants use process limitations to define the product and "product-by-process"

claims do not patentably distinguish the product even though made by a different process. *In re Thorpe* 227 USPQ 964.

Claim 8 is rejected under 35 U.S.C. 103(a) as obvious Mensa-Wilmot (021), as applied above, alone or in view of EP 577375.

Mensa-Wilmot (021) fails to literally state hat the inner layer is titanium or chromium carbide.

Although Mensa-Wilmot (021) fails to literally state in column 2, lines 62-65 that the inner layer is titanium or chromium carbide, the concept of coating the material with an inner layer and an outer layer (titanium carbonitride) is known by this reference and it is the examiners position that the specific materials applied in the respective layers defined in this passage are mere examples of the type of constructions. In view of this, one skilled in the art would have clearly appreciated and thus found it obvious that the materials used in the respective layers (i.e. inner layer in the case of the instant rejection) could include any of the known coatings as defined in column 2, lines 45-50, the motivation being that nitrides and carbides are known to be interchanged as coating materials. The examiner has established a clear prima facie case of obviousness and burden is shifted to applicants to establish clear proof as to why one skilled in the art would not or could not, under any circumstances, be motivated to use, as the inner coating layer defined by Mensa-Wilmot (021), any of the materials defined by column 2, lines 45-50 of the reference (two of which include the claimed materials-i.e. chromium carbide and titanium carbide)).

In the alternative, it is well established in the art of coating a diamond material that a nitride coating is interchangeable with a carbide coating (i.e. functional equivalence of these two layers, as shown by the EP reference in column 2, lines 31-32, thus the substitution of a carbide coating for the nitride coating of Mensa-Wilmot (021) would have been well within the scope of the skilled artisan motivated by the fact that the EP reference clearly teaches the interchangeability of a these two coatings when use to coat a diamond material. In other words, the substitution of one known functionally equivalent coating for another that is to be used for the same purpose (coating of a diamond material) is well within the scope of the skilled artisan. The examiner has established a clear prima facie case of obviousness and burden is shifted to applicants to establish clear proof as to why one skilled in the art would not or could not, under any circumstances, be motivated to interchange the coatings above. Although Mensa-Wilmot (021) is not directed to coating particles like the EP reference, both references are directed to the coating of a diamond material and one skilled in the art would have clearly appreciated that the coatings used on diamond particles can also be used on other diamond structures as would be apparent because of the chemistry involved (i.e. both are diamond materials).

Applicant's arguments filed 9/22/08 have been fully considered but they are not persuasive.

With respect to EP 532261, applicants argue that this reference does not teach (1) a diamond core and (2) a carbonitride coating. This is acknowledged, however, a combination rejection has been applied to show that these are obvious.

With respect to the ZA reference, applicants ask the question “what does this reference describe”? As is clearly outlined in the rejection, this reference teaches that in the art of coating abrasives (i.e. cBN or diamond), boride, nitride or carbide coatings are interchangeable with carbonitride coatings, thus establishing the functional equivalence of these coating for coating superabrasive grains to achieve desired results.

With respect to the combination rejection, applicants would appear to be arguing that since the carbonitride coating of the ZA reference is the primary coating and not an outer layer or coating consistent with the instant claims, one would not look to this reference to apply 2 layers, an inner layer and an outer layer. This line of argument is not addressing the examiners reasons for determining obviousness (i.e. see examiners specific reasons for establishing that the use of a carbonitride coating in the teachings of EP 532261 is obvious in terms of the interchangeability and substitution aspects defined). In view of this, no further comment is necessary.

Applicants also argue that EP 532261 only discloses cBN cores and that although the interchangeability of diamond and CBN can be done in some applications, this interchangeability can not be done in the coating of abrasives. The examiner disagrees because the ZA reference clearly shows that the same coatings can be applied to either diamond or cBN abrasive particles, thus clearly establishing that this interchangeability can be done in the coating of abrasives. In addition, it is to be noted as outlined above, that additional references have been used in the rejection to further establish evidence that this interchangeability can be done, as would clearly be appreciated by the skilled artisan.

Applicants provide a statement as to diamond being carbon and cBN being boron and nitrogen. The examiner is well aware of the chemistry of diamond and cBN. Applicants state

Art Unit: 1793

that since the chemistry is different, so could the coating. The examiner is well aware that the coating could be different, however, this argument is not persuasive because applicants state that the coatings “could be” different and “could be” does not state that the coatings must be different.

Finally, applicants provide a statement that in view of the above arguments, in the field of coating abrasives, it is not the case that one can interchange diamond and cBN. The examiner disagrees because, as defined above, the ZA reference and the new references (Chen and EP 577375) applied clearly teaches that when coating superabrasive particles based on the same coatings, one can use, as the superabrasive either diamond or cBN, thus clearly establishing that one can interchange diamond and cBN when coating them with the same material. In other words, since the secondary references clearly show that the same coatings can be applied to either diamond or CBN abrasive particles, this clearly establishes that the interchangeability of diamond and cBN can be done in the art of coating abrasives. Finally, applicants show no clear and persuasive arguments (proof) as to why one skilled in the art would not or could not, under any circumstances, be motivated to interchange one base particle for another when both are known to be coated with the same coatings.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Marcheschi whose telephone number is (571) 272-1374. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571) 272-1233. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300

Art Unit: 1793

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Michael A Marcheschi/
Primary Examiner, Art Unit 1793